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THE PLANT DISEASE SURVEY, DIVISION OF MYCOLOGY AND DISEASE SURVEY
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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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CHECK LIST REVISION

Freeman Weiss

The last preceding section of the revised Check List of Diseases of Economic Plants in the United States was issued in vol. 27, no. 9 (May 15, 1943), of the Plant Disease Reporter. In resuming the serial issuance of this list, it may be desirable to call attention to the following points:

1. The present series is limited to hosts of the order Graminales.
2. Only host plants of some economic importance are included, although a broad interpretation is placed on this term; for example, weeds and plants of value to wild life and in soil erosion control have been included, as well as those ordinarily considered as economic.
3. To avoid excessive duplication of records pertaining to more or less similar species of a single host genus, those applying to several species are often consolidated, but the different host species are numbered and corresponding numbers are inserted in the text to indicate which host is concerned; where no number appears in the text the record pertains only to the first host listed.
4. Separates of each sectional issue apart from the Reporter are available to persons having a special interest in this list, especially to those who will cooperate in improving it by calling attention to errors or omissions.

BAMBUSEAE (GRAMINEAE)

Several genera commonly known as BAMBOO, comprising the tribe Bambuseae, are assembled under the tribal name here because of the confused status of their generic differentiation. They are grass allies having mostly woody perennial culms, indigenous to E. Asia tropics, grown in warm parts of the U.S. chiefly for ornament, and in a small way for rods. The principal species are: BAMBUSA MULTIPLEX Raeusch, HEDGE BAMBOO, B. BULGARIS Schrad., COMMON B., PHYLLOSTACHYS AUREA Riv., GOLDEN B., P. BAMBUSOIDES Sieb. & Zucc., JAPANESE TIMBER B., and P. NIGRA Munro, BLACKJOINT B.

Basisporium gallarum Moll. (? Nigrospora sphaerica (Sacc.) Mason), on leaves. Fla.
Cladosporium graminum Pers. ex Cda., on leaves. S. Car.
Coniosporium shiraianum (Syd.) Bub., leaf & culm spot. Calif., Fla., Ga., Texas.
C. sphaerospermum Pers. ex Mason (C. bambusae (Thüm. & Bolle) Sacc.), on dead culms. General.
Cylindrosporium bambusae Miyake & Hara, on culms. Ga.
Daldinia concentrica (Bolt. ex Fr.) Ces. & de Not., on stumps. Md.
Diplodia bambusae Ell. & Langl., shoot blight. Texas.
Dothidella sp., on culms. Ga.
Fusarium merismoides Cda., on cut canes. Ga.
Guignardia bambusae Miyake & Hara, on culms. Md.
Helminthosporium sp., leaf spot. Fla.
Hendersonia sp., on culms. La.

BAMBUSEAE cont.

(Melanconium bambusae Turc.): Scirrhodothis bambusae
(M. sphaerospermum Pers. ex Lk.): Coniosporium s.
Phyllachora portoricensis (Chardon) Orton, black leaf spot. P. R.
Puccinia ignava Arth. (II), leaf rust. Fla., Ga., P. R. On Bambusa vulgaris; other stages unknown.
P. melanocephala Syd. (II, III), leaf rust. Fla., Ga., Miss., Texas. Verified records all on Phyllostachys spp.; O and I unknown.
Schizophyllum commune Fr., ? root rot. Texas; on dead culms, Calif.
Scirrhodothis bambusae (Turc.) Trott., on culms. Fla., Ga., P. R. The conidial stage, Melanconium bambusae Turc., is said to be associated with a blight of shoots.
Scirrhia lophodermioides Ell. & Ev., on culms. Hawaii
Sclerotium rolfsii Sacc., southern blight. P. R.
Selenophoma donacis (Pass.) Sprague & A. G. Johns., stem spot. Calif.
Ustilago shiraiana P. Henn., stem smut. Calif., Fla., La., Tex., P. R. Has been found occasionally on introduced plants (chiefly Phyllostachys spp.), but appears not to have become established on endemic plantings.

Mosaic, unclassified virus. Hawaii

BECKMANNIA (GRAMINEAE)

BECKMANNIA SYZIGACHNE (Stend.) Fern., AMERICAN SLOUGHGRASS. Coarse annual, of moist habitats in the Great Lakes States and Northern Plains to Calif.; of some forage value. Some of the records are for B. ERUCAEFORMIS (L.) Host, EUROPEAN S., to which the American sp. was formerly referred, and which has been grown locally.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Minn.
Erysiphe graminis DC., powdery mildew. Mo., Mont., S. Dak.
Helminthosporium sp., leaf spot. Mich.
Puccinia coronata Cda. (II, III), crown rust. Calif., Colo., Iowa, Minn., S. Dak.
P. graminis Pers. (II, III), stem rust. Mich., N. Dak., Oreg., Utah.
Scolecotrichum graminis Fckl., brown stripe. N. Dak., Oreg., Wash.
Uromyces beckmanniae Jacks. (II, III), rust. Oreg. O and I unknown.
Ustilago striaeformis (Westd.) Niessl, stripe smut. Pacific Northwest.

BLEPHARONEURON (GRAMINEAE)

BLEPHARONEURON TRICHOLEPIS (Torr.) Nash, PINE DROPSEED. Annual, occurring in foothills and plateaus of southern Rocky Mountains; of some forage value.

Phyllachora vulgata Theiss. & Syd., tar spot. N. Mex.

BOUTELOUA (GRAMINEAE)

BOUTELOUA CURTIPENDULA (Michx.) Torr., SIDE-OATS GRAMA. Perennial grass of the Great Plains and Central States, and dry meadows northeastward; furnishes valuable forage in short-grass regions; sometimes grown for hay in the Northeast.

Claviceps purpurea (Fr.) Tul., ergot. Nebr., Okla.
Dothichloë nigricans (Speg.) Chardon, black ring. Kans.
Fusarium spp. (F. equiseti (Cda.) Sacc., F. oxysporum Schlecht., F. scirpi var. acuminatum (Ell. & Ev.) Wr.), secondary root rot. N. Dak.
Helminthosporium inconspicuum Cke. & Ell. var. buchloës Ell. & Ev. (? H. turcicum Pass.), leaf spot. Kans., Nebr.
H. sativum Pam., King, & Bakke, root rot. N. Dak.
Lophodermium arundinaceum (Schrad. ex Fr.) Chev., black leaf spot. Kans.
Phyllachora boutelouae Rehm, tar spot. Ill., Iowa, Kans., Tex., Wis.
Puccinia bartholomaei Diet. (II, III), rust. Wis. to Miss., Ariz., and S. Dak. O and I on Asclepias spp.
P. boutelouae (Jennings) Holw. (II, III), rust. Ariz., Tex. O and I unknown. Additional reports from Kans., Nebr., and Okla., but perhaps confused with P. vexans and P. stakmanii which also infect this host.
P. graminis Pers. (II, III), stem rust. (Natural infection cited without locality in PDR Suppl. 130, 1941).
P. vexans Farl. (II, III), rust. Wis. to Miss., Ariz. and N. Dak., also Md.
Pythium arrhenomanes Drechs., root browning. N. Dak.
P. debaryanum Hesse, root necrosis. N. Dak.
Rhizoctonia solani Kühn, secondary root rot. N. Dak.
Selenophoma donacis (Pass.) Sprague & A. G. Johns., speckle. N. Dak.
Ustilago hieronymi Schroet., leaf smut. Ariz., Ind., Kans., N. Dak., Okla., Tex., Utah.

Rosette, cause unknown. Kans.

BOUTELOUA GRACILIS (H. B. K.) Lag., BLUE GRAMA (1); B. HIRSUTA Lag., HAIRY G. (2); B. ERICOPODA Torr., BLACK G. (3); and B. ROTHROCKII Vasey, ROTHROCK G. (4). Perennial grasses of the Great Plains, the latter two only in the Southern Plains, the first two also in the Northern Plains and Prairie States; a main source of summer forage in the short-grass regions.

Ascochyta boutelouae Fairm., leaf spot. N. Mex., N. Dak.
Curvularia geniculata (Tracy & Earle) Boed., secondary root rot. Mont., N. Dak.
Epichloë typhina (Pers. ex Fr.) Tul., choke. Kans., Nebr.
Fusarium spp., secondary root rot. F. poae (Pk.) Wr. and F. scirpi var. acuminatum (Ell. & Ev.) Wr., N. Dak.; F. sporotrichoides Sherb., Nebr.
Graphyllium chloës Clements, on culms. Nebr.

BOUTELOUA cont.

Helminthosporium inconspicuum Cke. & Ell. var. buchloës Ell. & Ev. (? H. turcicum Pass.), leaf spot. Kans.
H. sativum Pam., King, & Bakke, root rot. N. Dak.
Phyllachora boutelouae Rehm, tar spot. Nebr., N. Mex., N. & S. Dak., (1); Wis., Wyo. (2).
Pleospora oligostachyae Ell. & Ev., on leaves. Kans.
Puccinia bartholomaei Diet. (II, III), rust. N. Dak. to Tex., Ariz. & Mont.
P. graminis Pers., stem rust. (PDR Suppl. 130)
P. stakmanii Presley (II, III), rust. Ariz., Tex. (O & I on Gossypium hirsutum L., also by inoculation on other Gossypium spp. All tested Bouteloua spp. are susceptible and some collections reported as P. vexans may be this.)
P. vexans Farl. (II, III), rust. Kans., Nebr.
Pythium arrhenomanes Drechs., root browning. N. Dak.
P. debaryanum Hesse, root necrosis. N. Dak.
Rhizoctonia solani Kühn, secondary root rot. N. Dak.
Rhynchosporium secalis (Oud.) J. J. Davis, scald. Nebr.
Scaphidium boutelouae Clements, on leaves. Nebr. (2).
Ustilago boutelouae Kell. & Swing., head smut. Kans., La., Nebr., Okla., Tex. (+2). Also on B. barbata Lag. and B. simplex Lag. (annuals) in Ariz.
U. hieronymi Schroet., leaf smut. N. Dak. to Tex., Ariz. and Mont. Also on B. chondrosioides (H. B. K.) Benth. (perennial) and B. barbata Lag. (annual) in Ariz.
U. minor Norton, leaf smut. Kans., Nebr.

BRACHIARIA (GRAMINEAE)

BRACHIARIA spp., SIGNALGRASS. Chiefly B. EXTENSA Chase, an annual occurring in waste ground in Fla. to Tex. and Okla.; also B. CILIATISSIMA (Buckl.) Chase, a perennial, in Ark. and Tex., of some food value to wild life.

Claviceps purpurea (Fr.) Tul., ergot. Fla. With Cerebella andropogonis Ces., Md.
Curvularia lunata (Wakker) Boed., on roots. Fla.
Helminthosporium sp., leaf spot. Fla.

Mosaic -- Saccharum virus 1, Marmor sacchari Holmes. La.

BRACHYPODIUM (GRAMINEAE)

BRACHYPODIUM SYLVATICUM (Huds.) Beauv., SLENDER FALSEBROME. Perennial grass of Mediterranean region, sometimes grown for ornament.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Md. (On B. mucronatum Willk.)
Curvularia geniculata (Tracy & Earle) Boed., secondary root rot. N. Dak.
Fusarium scirpi var. acuminatum (Ell. & Ev.) Wr., secondary root rot. N. Dak.

BRACHYPODIUM SYLVATICUM cont.

Macrophomina phaseoli (Maubl.) Ashby, secondary root rot. N. Dak.
Pseudomonas coronafaciens (Elliott) Stapp var. atropurpurea (Reddy & Godkin) Stapp, chocolate spot, N. Dak.
Pythium arrhenomanes Drechs., root browning. N. Dak.

BRIZA (GRAMINEAE)

BRIZA spp., QUAKING GRASS. Especially B. MAXIMA L. and B. MINOR L., annuals intr. from Europe, the former sometimes grown for ornament, the latter adventive in California and the Southeastern States, of some forage value; and B. MEDIA L., perennial, sparingly intr. in the Northeast.

Puccinia graminis Pers. (II, III), stem rust. Minn., S. Dak., Wis.

BROMUS (GRAMINEAE)

BROMUS CARINATUS Hook. & Arn., MOUNTAIN BROME (1); also B. MARGINATUS Nees (2), B. MARITIMUS (Piper) Hitch. (3), and B. POLYANTHUS Scribn. (4). Tall annual or biennial (1), or perennial (2, 3, 4) grasses occurring in woods and meadows at medium altitudes in the Pacific Coast and Rocky Mountain States eastward to the Plains; valuable for forage.

Alternaria sp., on spikelets. Oreg.
Ascochyta graminicola Sacc. var. diedickeana Baudys & Picb., leaf spot. Oreg.
Cercosporella herpotrichoides Fron, foot rot. Ida. (2).
Claviceps purpurea (Fr.) Tul., ergot. Ida., Ind., Mont., Oreg., Wash., Wyo. (1 & 2).
Erysiphe graminis DC., powdery mildew. Ida., Mont., Oreg., Wash., Wyo. (1 & 2).
Fusarium spp., secondary root rot. Oreg.
F. nivale (Fr.) Ces., snow mold. Wash. = Calonectria graminicola Berk. & Br.) Wr.
Helminthosporium bromi Died., leaf spot. Ky (2). Conidial stage of Pyrenophora bromi (Died.) Drechs.
H. sativum Pam., King, & Bakke, root rot. N. Dak., Wash. Conidial stage of Cochliobolus sativus (Ito & Kuribayashi) Drechs. apud Dastur.
Heterosporium sp., on leaves. Oreg.
Ovularia pulchella (Ces.) Sacc., gray leaf spot. Wash.
Pseudomonas coronafaciens (Elliott) Stapp var. atropurpurea (Reddy & Godkin) Stapp, chocolate spot. N. Dak., Oreg., Wash., Wis. (1 & 2)
Puccinia coronata Cda. (II, III), crown rust. Colo. (3), Mich. (2 & 3)
P. glumarum (Schm.) Eriks. & Henn. (II, III), stripe rust. Calif., Ida., Mont., Oreg., Wash., Wyo. (1 & 2).
P. graminis Pers. (II, III), stem rust. Wash. (1 & 2), Mont. (3 & 4), N. Dak. (2).
P. rubigo-vera (DC.) Wint. (II, III), leaf rust. Calif., Ida., Nebr., Oreg., Wash., Wis. (1, 2, & 3). The vars. agropyri (Ell. & Ev.) Arth. and secalis (Eriks.) Carleton, and the f. spp. alternans

BROMUS CARINATUS etc., cont.

(Arth.) Mains and bromicola Mains have been identified on (2); the var. agropyri on the others.

Pythium arrhenomanes Drechs. root browning. N. Dak. (2).

Rhizoctonia ? solani Kühn, sheath spot. Oreg.

Rhynchosporium secalis (Oud.) J. J. Davis, scald. Wash. (1 & 2).

Scolecotrichum graminis Fckl., brown stripe. Calif., Ida., Mont., Oreg., S. Dak., Wash., Wyo. (1 or 1 & 2); N. Y. (2).

Selenophoma bromigena (Sacc.) Sprague & A. G. Johns., speckle. N. Dak., Wyo.; Wash. (+2).

Septoria bromi Sacc., leaf spot. Oreg.

S. jacuella Sprague, western leaf spot. Calif. (2), Oreg. (1 & 2).

Stagonospora bromi A. L. Sm. & Ramsb., leaf blotch. Mich., N. Dak.

Urocystis agropyri (Preuss) Schroet., flag smut. Wash. (2).

Ustilago bullata Berk. (U. bromivora (Tul.) Alek. Fisch.), head smut. General throughout the natural range of these grasses and found also in grass nurseries in the East, e. g., Md., Mich. Following G. W. Fischer, this head smut of many grasses is designated by the name of the composite species instead of the one generally but not exclusively occurring on Bromus spp. Fischer's Race 5 attacks all the mountain bromes; Race 7 attacks B. marginatus but not the other spp. of this group.

Bends (hair-pin), cause unknown. Wash. (2).

BROMUS CATHARTICUS Vahl, RESCUE GRASS. Annual or biennial grass, cult. for winter forage in the South, sparsely established in the Southwestern and Pacific Coast States.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Tex.

Erysiphe graminis DC., powdery mildew. Ga., S. Dak., Tex.

Helminthosporium sp., leaf spot. Fla., Ga.

Puccinia glumarum (Schm.) Eriks. & Henn. (II, III), stripe rust. Calif.

P. rubigo-vera (DC.) Wint. (II, III), leaf rust. Oreg., Wash. Var. agropyri Arth. identified.

Scolecotrichum graminis Fckl., brown stripe. N. Y., Wash.

Stagonospora bromi A. L. Sm. & Ramsb., leaf blotch. Ky.

Ustilago bullata Berk. (U. bromivora (Tul.) Alek. Fisch.), head smut. Ark., Nebr., N. Y., N. Dak., Oreg., Tex., Wash.; Hawaii.

BROMUS CILIATUS L., FRINGED BROME (1); also B. ANOMALUS Rupr., NODDING BROME (2), and B. PURGANS L., CANADA BROME (3). Tall perennial grasses occurring in open woods and on the plains, important elements of bunch-grass formation and valuable for forage; the first occurs throughout the Western and Northern States, the second is chiefly western, the latter eastern.

Cladosporium graminum Cda., on leaves. Iowa (3).

Claviceps purpurea (Fr.) Tul., ergot. Mont.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Iowa (3).

Phyllachora graminis (Pers. ex Fr.) Tul., black spot. Ind. (1), Wyo. (2).

BROMUS CILIATUS etc., cont.

Pleospora infectoria Fckl., on culms. Calif.

Pseudomonas coronafaciens (Elliott) Stapp var. atropurpurea (Reddy & Godkin) Stapp, chocolate spot. Oreg.

Puccinia coronata Cda. (II, III), crown rust. Colo., Mich. (+2 & 3), N. Y. The f. sp. bromi Fraser & Ledingham has been identified.

P. glumarum (Schm.) Eriks. & Henn. (II, III), stripe rust. Colo., Mont., Wash.

P. graminis Pers. (II, III), stem rust. Calif. (1), Ind. (3), Minn. (3).

P. rubigo-vera (DC.) Wint. (II, III), leaf rust. General. The var. agropyrina (Eriks.) Arth. commonly occurs on these hosts; the f. sp. arthuri Mains has been identified on (1) and (3) in Ind., Iowa, Nebr., N. Y., and Wis.; the f. sp. alternans (Arth.) Mains in Colo. and Utah on (2).

P. tomipara Trel. (II, III), leaf rust. Mich., Wis. (1 & 2). Considered a synonym of P. rubigo-vera by some authorities and a distinct species by others.

Sclerotium rhizodes Auers., leaf blight. Wis.

Selenophoma bromigena (Sacc.) Sprague & A. G. Johns., speckle. Colo.

Septogloeum oxysporum Bomm., Rouss., & Sacc., char spot. Oreg.

Septoria brevispora Ell. & J. J. Davis, leaf spot. Wis.

Urocystis agropyri (Preuss) Schroet., flag smut. Iowa, Kans.

Ustilago bullata Berk. (U. bromivora (Tul.) Alek. Fisch.), head smut. Colo., Iowa, Mich., Mont., Wash. (1, 2, & 3). Includes U. bromivora var. macrospora Farl. on (1) in Colo. and Iowa.

Bends (hair-pin), cause unknown. Wash.

BROMUS INERMIS Leyss., SMOOTH BROME (Hungarian b.) (1). Turf-forming perennial grass of Europe, cult. for hay and pasture, and widely naturalized in the North Central and Western States. Also B. PUMPELLIANUS Scribn. (2) in the northern Rocky Mountains, and B. ERECTUS Huds. (3) intr. from Europe sparsely established in the Northern States.

Ascochyta graminicola Sacc., leaf spot. Ky., Minn., N. Dak.

Cercosporella herpotrichoides Fron, foot rot. Ida.

Claviceps purpurea (Fr.) Tul., ergot. General on (1); also on (2) in Mont., Minn., and N. Y.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Nebr.

Erysiphe graminis DC., powdery mildew. Minn., Wash. (+2).

Fusarium spp., secondary root rot. N. Dak. to Mont. and Nebr. Identified spp. include F. equiseti (Cda.) Sacc., F. oxysporum Schlecht. several vars., F. poae (Pk.) Wr., F. scirpi C. R. Lambert & Fautr. several vars. (1); F. scirpi var. acuminatum (Ell. & Ev.) Wr., N. Dak. (2).

Helminthosporium sp., leaf spot, Minn.; root rot, N. Dak. See also Pyrenophora bromi.

H. giganteum Heald & Wolf, leaf spot. Md.

H. sativum Pam., King, & Bakke, root rot. N. Dak. to Nebr. and Mont.

Ophiobolus graminis Sacc., take-all. N. Dak.

BROMUS INERMIS etc., cont.

Phyllachora graminis (Pers. ex Fr.) Fckl., tar spot. N. Dak.
Pratylenchus pratensis (De Man) Filip., in roots. Utah.
Pseudomonas coronafaciens (Elliott) Stapp var. atropurpurea (Reddy & Godkin) Stapp, chocolate spot. General in northern Prairie and Plains States (1); also on (2).
Puccinia coronata Cda. (II, III), crown rust. Colo. (3), S. Dak. (1).
P. glumarum (Schm.) Eriks. & Henn. (II, III), stripe rust. Ida. (2).
P. graminis Pers. (II, III), stem rust. Natural infection (3)
P. rubigo-vera (DC.) Wint. (II, III), leaf rust. The var. agropyri (Ell. & Ev.) Arth. recorded in Colo. on (3), and the f. sp. lithospermi Mains.
Pyrenophora bromi (Died.) Drechs. (Helminthosporium bromi Died.), leaf spot. N. Y. to Md., Ky., and N. Dak.
Pythium arrhenomanes Drechs., root browning. Minn. to Nebr. and Mont. (1); N. Dak. (2).
P. debaryanum Hesse, root necrosis. Minn., Nebr., N. & S. Dak. Also occasionally P. irregulare Buis., P. proliferum DBy., and P. ultimum Trow.
Rhizoctonia solani Kühn, secondary root rot. N. & S. Dak.
Rhynchosporium secalis (Oud.) J. J. Davis, scald. Calif., Wash., Wis.
Sclerotium sp., secondary root rot. N. Dak.
Scolecotrichum graminis Fckl., brown stripe. Oreg.
Selenophoma bromigena (Sacc.) Sprague & A. G. Johns., speckle. General from Wis. to Nebr. and Mont., also Wash.
Septoria bromi Sacc., leaf spot. Mont., N. Dak., Wis.
Stagonospora bromi A. L. Sm. & Ramsb., leaf blotch. Ky., Wis.
Ustilago bullata Berk. (U. bromivora (Tul.) Alek. Fisch.), head smut. Frequent throughout the range (1); Ida., N. Dak., Wash. (2); Mich. (3).

Bends (hair-pin), cause unknown. Ky., Mont., Wash., Wis.

Mosaic (Marmor graminis McKinney). Kans.

BROMUS SECALINUS L., CHESS (cheat) (1). Annual, intr. from Europe, and widely distr. in the U. S., sometimes used for hay in the Northwest. Also B. MOLLIS L., SOFT CHESS (2), widely distr. as a weed; and B. BRIZAEFORMIS Fisch. & Mey., RATTLESNAKE CHESS (3), annual, sometimes cult. for ornament.

Claviceps purpurea (Fr.) Tul., ergot. Ind.
Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Ohio, Pa., Tex.
Erysiphe graminis DC., powdery mildew. Wash. (2).
Fusarium nivale (Fr.) Ces., snow mold. Wash. (2)
Gibberella zeae (Schw.) Petch, scab, head blight. Wis.
Helminthosporium sp. (? bromi Died.), leaf spot. Calif.
Heterodera marioni (Cornu) Goodey, rootknot. Hawaii.
Mycosphaerella longissima (Fckl.), leaf spot. Alaska
Ophiobolus graminis Sacc., foot rot. Ark., N. Y.
Phoma graminella Sacc., on leaves. Miss.

BROMUS SECALINUS etc., cont.

Phyllosticta sp., leaf spot, Ga.
Puccinia coronata Cda. (II, III), crown rust, Ga., Mich. (3).
P. glumarum (Schm.) Eriks. & Henn. (II, III), stripe rust, Wash. (2 & 3).
P. graminis Pers. (II, III), stem rust, Md., Ill., Ind., Iowa, Kans., Pa., W. Va., Wis. The var. avenae Eriks. & Henn. has been identified.
P. rubigo-vera (DC.) Wint. (II, III), leaf rust. Calif., Md., Ind., N. C., Oreg. The var. agropyrina (Eriks.) Arth. has been identified on (1); var. agropyri (Ell. & Ev.) Arth. on (2).
Rhynchosporium secalis (Oud.) J. J. Davis, scald. Calif.
Sclerotium sp., leaf blight. Wash. (2).
Scolecotrichum graminis Fckl., brown stripe. Wash. (2).
Septoria bromi Sacc., leaf spot. Ida., Ill., Ind., Ky., Mo., N. C., Oreg., Tenn., Wis.
Tilletia guyotiana Hariot, covered smut. Ida., Oreg., Wash. (2 & 3).
Tylenchus spiralis Cassidy, in roots. Hawaii.
Ustilago bullata Berk. (U. bromivora (Tul.) Alek. Fisch.), head smut. Calif., Mont., Oreg., Utah, Wash.

Bends (hair-pin), cause unknown. Mich. (2), Wash. (1).

BROMUS TECTORUM L., DOWNY CHESS (1); B. RIGIDUS Roth, RIPGUT GRASS (2); B. RUBENS L., FOXTAIL CHESS (3). Long-awned annuals, occurring as weeds in cultivated ground and forming dense stands in waste places; the first-named distr. throughout the U. S., the latter two in the Pacific Coast and intermountain areas, there serving as soil binders and affording some forage.

Cercospora bromi Sprague, gray leaf spot, Oreg., Wash. (2).
Cercosporella herpotrichoides Fron, foot rot. Oreg., Wash.
Erysiphe graminis DC., powdery mildew. Nebr., Wash. (+2).
Fusarium culmorum W. G. Sm., root rot. Oreg., Wash.
F. equiseti (Cda.) Sacc. and F. scirpi var. acuminatum (Ell. & Ev.) Wr., secondary root rot. N. Dak.
F. nivale (Fr.) Ces., snow mold. Oreg., Wash. (+2).
Helminthosporium sativum Pam., King, & Bakke, root rot. N. Dak.
Pseudomonas coronafaciens var. atropurpurea (Reddy & Godkin) Stapp, chocolate spot. Oreg. (+2), Wash.
Puccinia coronata Cda. (II, III), crown rust. Natural infection reported on (2).
P. glumarum (Schm.) Eriks. & Henn., stripe rust. Natural infection reported on (3).
P. graminis Pers. (II, III), stem rust. Calif., Colo., Wash. The vars. avenae, phlei-pratensis, secalis, and tritici have been identified on (1).
P. rubigo-vera (DC.) Wint. (II, III), leaf rust. Calif., Oreg., Wash. The var. agropyri (Ell. & Ev.) Arth. identified.
Pythium irregulare Buis. and P. proliferum DBy., root necrosis. Nebr.
Sclerotium sp., leaf blight. Wash.
Septoria jacuella Sprague, western leaf spot. Wash. (+2).

BROMUS TECTORUM etc., cont.

Ustilago bullata Berk. (U. bromivora (Tul.) Klek. Fisch.), head smut. General in Pacific Northwest and northern Rocky Mountains. U. bromivora var. macrospora Farl. on (1) in Wash. is included here.

Wojnowicia graminis (McAlp.) Sacc. & D. Sacc., secondary root rot. Oreg.

Bends (hair-pin), cause unknown. Wash.

BUCHLOË (GRAMINEAE)

BUCHLOË DACTYLOIDES (Nutt.) Engelm., BUFFALO GRASS. A dominant perennial and important forage grass of the short-grass ranges of the Western Plains from N. Dak. and Mont. to Tex.

Alternaria sp., glume spot. Tex.

Anguina sp., nematode gall of leaves and seeds. Kans., Okla., Tex. Reported as Anguillulina agrostidis Gernert: reference to Anguina sp. on authority of G. Steiner.

Cercospora seminalis Ell. & Ev., leaf and glume spot, false smut. Colo., Kans., Nebr., N. & S. Dak., Okla., Tex.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Nebr.

Fusarium equiseti (Cda.) Sacc., secondary root rot. N. Dak.

Helminthosporium sp., leaf spot. Kans., Ky. Tex.

H. inconspicuum Cke. & Ell. var. buchloës Ell. & Ev., leaf and glume spot. Kans., Nebr., Tex.

H. turcicum Pass., leaf spot. Kans.

Phyllachora boutelouae Rehm, tar spot. Ark., Kans., Tex.

Puccinia kansensis Ell. & Barth. (II, III), leaf rust. Kans., Nebr.

P. graminis Pers. (II, III), stem rust. Suppl. 130.

Tilletia buchloëana Kell. & Swing., kernel smut. Kans., Tex.

Ustilago buchloës Ell. & Tracy, leaf smut. Nebr., N. Mex.

DIVISION OF MYCOLOGY AND DISEASE SURVEY

EPIPHYTOTIC DEVELOPMENT OF CEREAL RUSTS IN OKLAHOMA

H. W. Larsh, D. E. Hoffmaster, and K. Starr Chester

The fall of 1944 is the third in 5 years in which cereal leaf rusts have been epiphytotic in the Southern Great Plains, and the 1944 outbreak may be even more severe than those of 1940 and 1942.

Early in November there were examined specimens of rusted wheat from Osage County in north-central Oklahoma, where the wheat is grown largely as patrurage. The wheat had been planted very early and was about 9 inches high. It was so heavily attacked by leaf rust (Puccinia triticina Erikss.) [P. rubigo-vera var. tritici] that the majority of the leaves had been killed and those remaining showed an average rust intensity of 50% according to the modified Cobb scale. The County Agricultural Agent and ranchers concerned indicated that the condition was quite prevalent in Osage County, and that pasturage was being seriously affected.

A few days later, similar specimens were received from Blaine and Custer

Counties, in western Oklahoma. The Extension Agronomist, Mr. Wesley Chaffin, who submitted the samples, reported that County Agents and farmers were much concerned, and that they claimed that livestock were refusing to graze on the rusted wheat.

Mr. Chaffin then made a survey of wheat fields in west-central Oklahoma, Nov. 13 to 15. Leaf rust was abundant in the principal wheat section of the State, but he found no evidence that cattle were refusing to graze on the rusted crop. Indeed, as has been noted before, Mr. Chaffin saw some indication that, at times, the livestock appeared to prefer it to healthy wheat, and he saw many instances of normal grazing on badly rusted wheat.

In view of the importance of the outbreak, a survey of 87 wheat fields was made from November 15 to November 19, fields being examined every 10 miles along the route Stillwater-Enid-Pondcreek-Buffalo-Seiling-Watonga-Clinton-Hobart-Chickasha-Stillwater. Abundant leaf rust was found in every field, regardless of variety. On the average the intensity of the rust was 25%, but in some fields it reached 40 or 50%. Particular attention was given to observing indications of the palatability of the wheat, and it was found that cattle were grazing on it normally. The rust was found in wheat varying in size from seedlings in the 2-leaf stage to plants one foot high. In the latter case, much of the foliage had already been destroyed, giving the fields the appearance of having been subjected to a severe freeze.

In some of the fields there was observed a trace of stem rust on the wheat leaves. This was limited to the area around Enid.

Eleven fields of oats were examined, and in 10 of these crown rust (Puccinia coronata Cda.) was present in intensity from 20% to 40%. The oats were also affected by stem rust, and in some cases severely attacked by Helminthosporium leaf spot.

The development of the cereals in Oklahoma has been very abnormal during the present fall season. Many fields were planted as early as August and this, coupled with the mild weather, which has been prolonged very much later than usual, has led to unusually extensive vegetative development. In a number of cases fall-planted oats had fully headed out. Farmers consulted had no recollection of this having happened in past years. At the time of writing it is already 10 days past the average date of the first hard freeze and there have not been temperatures low enough to have injured such tender plants as tomatoes.

Fall rains have provided frequent heavy dews, and the temperatures have been in the range 60° to 70° F, favorable to leaf rust, for a number of weeks. This, together with the rank growth of the wheat, has evidently made the rust outbreak possible.

The epiphytotic of 1944 emphasizes the point recently made by Melchers et al., that adult plant rust resistance is not sufficient, at least for the Southwest. Efforts in breeding must also give attention to seedling plant resistance. In some parts of the Southwest fall pasturage of cereals is a cash crop, and the 3 outbreaks of the past 5 years may have very materially reduced the value of the pasturage, in addition to their unfavorable effects on winter survival of the cereals.

EMERGENCY PLANT DISEASE PREVENTION PROJECT, AND OKLAHOMA AGRICULTURAL EXPERIMENT STATION, STILLWATER, OKLAHOMA

CORN EAR ROTS IN IOWA

Edgar F. Vestal

Early season cool temperature accompanied by heavy rainfall during 1944 would lead to the conclusion that we might expect a more-than-usual amount of dry rot producing fungi to be present in the corn at harvest time. However, results based upon macroscopical examination have not borne out these conclusions.

During the 5 weeks that have elapsed since the first corn was harvested in Iowa, a considerable portion of 44 counties in the State have been surveyed. One hundred and nineteen farms, selected at random, have been visited, and on each farm a 100-ear lot of ears, still on the stalks, examined for ear rot fungi. Where ever possible the Diplodia stalk infection was also determined. The data collected are included in the accompanying table.

Percentage of Ear Rot Fungi and Smut on Corn Examined in Iowa Between October 14 and November 18, 1944

No. counties surveyed	No. farms surveyed	Dip-lo-dia	Fusarium moniliforme	Nigrospora	Gibberella	Diplodia stalk rot	Smut	Loss due to all fungi
44	119	0.91	3.68	4.62	6.08	2.91[a]	1.15	6.06

[a] The Diplodia stalk infections were determined from 100 consecutive stalk counts in the fields. However, the data are incomplete as many of the stalks were still green at the time of the survey, and the pycnidial development delayed. The figure of the Diplodia stalk infection shown above represents the average of the surveys on only 44 of the 119 farms.

Figures for the individual Crop Reporting Districts (not shown in the table) show a wide range of percentage of the ear rot producing fungi. In general the greatest amount of diseased corn was found in the eastern and southeastern portions of the State, with the least amount in the north central and northwestern portions. Diplodia ear rot infections were less than expected. Smut infections were extremely variable this season. Fields with no visible smut might be separated only by a fence from a field with 20 to 25% of the stalks bearing smut masses. By far the greater percent of the smut infections found during the past season were tassel or stalk smut. The amount of ear smut would probably not be more than 0.1% of the total infection seen.

The late fall delayed the maturity of much of the Iowa corn crop this year. Experience of the past seasons indicated to the Iowa farmer that when October neared the end of its time, the corn should be in the crib. Many farmers, influenced by the passing days, rather than their better judgment and the maturity of the corn, harvested while the ears were still green with a high percentage of moisture. Already reports have been received of corn that heated in the crib and had to be moved, or, in some cases, where that was impractical, the farmer was forced to sell at a price much below the present market level. It seems quite likely now that much loss will result from the harvesting of immature and wet

corn. Much of this loss will probably be due to fungi and bacteria that are ordinarily saprophytic and not those commonly classed as the dry rot fungi.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

CORN DISEASES IN SOUTHERN INDIANA

J. S. Tidd [1]

Dent corn, in fields in Southern Indiana, from Posey County in the southwest to Switzerland County in the southeast, was surveyed for stalk and ear rotting fungi during the week ending November 18, 1944. Detailed notes were taken on 100 plants in 15 fields in 8 counties and are tabulated in Table 1.

The areas covered included some of the bottomlands along the Ohio River. Much of the corn had already been picked or was standing in shocks but about 50% was still uncut in some counties. All corn was presumably of the hybrid type.

In general, worm injury was much more severe than in fields that had been surveyed earlier in Central and Northern Indiana. As a result, kernels infected with Fusarium sp. and Penicillium sp. were much more common and the losses from these organisms were higher.

In addition to the stalk and ear rotting fungi reported in the table, Aspergillus sp. was noted on a few grains on .87% of all ears and Rhizopus nigricans on 1.33%. Phaeocytosporella zeae was present on occasional stalks. Black bundle plants occurred to the extent of 2.33%. Some of the black bundle plants were barren, the remainder with small nubbin-like ears. Two percent of all plants sampled were smutted (Ustilago maydis), two-thirds of the galls being on the stalk, the others on the ears. Occasional kernels on .87% of all ears were infected with Hormodendron sp.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

ASTER YELLOWS AND OTHER VIRUS DISEASES ON VEGETABLE CROPS IN TEXAS

George E. Altstatt [1]

Surveys were made in the Winter Garden, the Lower Rio Grande Valley, and other areas in Texas, during November. Mention is made of those diseases which are new, or have shown an increase since the last trip approximately one month previous. In the survey in the Winter Garden area, I was accompanied by Dr. S. S. Ivanoff, and in the Lower Valley, by Dr. G. H. Godfrey.

Aster Yellows. Beginning at a point near Sabinal, and proceeding toward Uvalde, Uvalde County, the symptoms of aster yellows were common on the weed Parthenium sp. which is found along the roadsides. This same plant was found infected near Odem, and Robstown (San Patricio and Nueces Counties, respectively) and along the highways between Mathis and Beeville (Bee County). Infection was also noted in Lactuca scariola south of El Indio, Maverick County, and in the Laredo area, Webb County. At Uvalde, one field of early carrots showed approximately 15% infection.

Table 1--Corn Ear and Stalk Rots in Southern Indiana, November 14-18, 1944

Table 1--Corn Ear and Stalk Rots in Southern Indiana, November 14--18, 1944

County	Size of field (acres)	Sappy stalks	Per cent of plants with: Diplodia zeae Stalk rot	Diplodia zeae Ear rot	Gibberella zeae Stalk rot	Gibberella zeae Ear rot	Other ear rots Nigrospora sphaerica	Other ear rots Fusarium	Other ear rots Penicillium	Remarks
Daviess	20	18	48	4	10	2	0	20	21	Yellow Dent
Posey	20	30	48	4	38	1	0	28	50	Yellow Dent
"	20	66	17	3	2	0	0	47	32	Bottom land; White Dent
"	40	37	38	0	8	0	0	62	41	White Dent
Spencer	10	73	12	1	15	3	0	68	49	Yellow Dent
"	10	40	22	3	8	0	0	33	16	" "
Perry	30	43	39	0	22	2	2	60	55	Bottom land; Yellow Dent
"	10	28	50	1	22	0	4	18	10	Bottom land; Yellow Dent
Harrison	5	75	18	2	20	0	0	50	17	Yellow Dent
Clark	10	37	46	1	16	3	0	51	51	" "
"	60	10	47	3	3	1	4	36	31	Bottom land; Yellow Dent
"	10	20	47	2	35	3	0	34	36	Yellow Dent
Jefferson	10	2	48	Trace	18	2	2	72	40	" "
"	20	40	15	Trace	4	0	1	66	25	" "
Ripley	100	25	38	Trace	29	0	0	35	30	" "
Average per field		36.3	35.5	1.6	16.7	1.13	.87	45.3	33.6	Probably all hybrids

The plants were off-color and there was the usual proliferation of leaves, with some necrosis of central leaves. At El Indio, there was a trace of aster yellows on spinach. At La Joya and Terra Blanca (Hidalgo County) a few carrots were found infected (November 1-15). A trace of aster yellows was also observed in carrots at Ysleta, El Paso County, November 22.

Pepper Mosaic. With Dr. S. S. Ivanoff, bell peppers were examined in the vicinity of Winter Haven, Carrizo Springs, and Brundage, and at the packing sheds at Carrizo Springs. The principal cause of rejections at the packing shed was due to mosaic infection of the fruits, and subsequent examination of the fields from which these peppers were taken showed that the mosaic disease was prevalent. Symptoms of severe infection were more pronounced, and apparently infection had increased in the past month. Pepper mosaic in the Lower Valley did not appear to have increased appreciably in the past 30 days.

Virus Diseases of Tomato. Tip blight of tomato was observed in trace amounts at El Indio and Quemado. A trace of streak was seen at Brundage. Mosaic was still prevalent in these areas, but had not increased perceptibly in the past 30 days. In one 2-acre field south of Weslaco in the Lower Valley, 100% of the plants were severely infected with mosaic. Plants and fruits were severely damaged.

The trouble similar to "bunchy top" and described as "rosette" by Harrison and Ivanoff (PDR Vol. 26, No. 11, p. 47, 1942) was still evident at Laredo and in the Lower Valley, but there was no significant increase in numbers of affected plants.

Virus Diseases of Squash. Mosaic was severe in squash (White Scallop) grown in one planting north of Elsa, in the Lower Valley where better than 50% of the plants showed severe infection. This disease was seen in other plantings, but usually in trace amounts. A trace of cucumber mosaic was seen in small plantings of cucumbers in the same area (November 12).

EMERGENCY PLANT DISEASE PREVENTION PROJECT

SEED TREATMENT OF PEAS DECREASES FERTILIZER INJURY

G. K. Parris

In 1944, as in past years, the plant pathology department of the Virginia Truck Experiment Station cooperated in national seed treatment trials on peas. This year's tests called for the planting of duplicate lots of treated and untreated seeds at 2 dates, 4 to 7 days apart if possible. Just before the first half of a local test was installed, the writer had occasion to speak with the late director of the Station, Dr. H. H. Zimmerley, on the subject of fertilization of the peas. Director Zimmerley made the statement that if peas came into contact with commercial fertilizer in the soil, treated seed would come up no better than untreated seed and seedling stands would be alike. To test this belief, both lots of seeds were planted simultaneously, side by side, one lot planted in soil previously mixed in the row with a 6-8-6 fertilizer at approximately 800 pounds per acre, the companion lot planted in non-fertilized soil. The soil was of optimum-to-wet moisture content, and pH 5.9. The peas were planted on February 17 and the soil was kept very wet and cold for the following 10 days to 2 weeks by intermittent rains and low temperatures. Plants that emerged were counted when 6 to 8 inches tall (April 22), and

Table 1. Mean percent emergence of peas, variety Thomas Laxton, treated with various chemicals or untreated, planted in non-fertilized soil or in soil to which a 6-8-6 fertilizer was added by hand, at approximately 800 pounds per acre, immediately before sowing the seeds.

Seed treatment	Fertilizer in row?	Mean percent emergence	Diff.	Mean percent strong plants	Diff.
Spergon (2.0%)	No	96.0		95.0	
	Yes	93.0	3.0	89.8	5.2
Spergon (1.5%)	No	95.8		93.8	
	Yes	94.2	1.6	87.6	6.2
Arasan (2.0%)	No	94.4		91.0	
	Yes	96.4	-2.0	92.0	-1.0
Arasan (1.5%)	No	93.2		90.8	
	Yes	91.8	1.4	85.2	5.6
Red Copper Oxide (2.25%)	No	94.2		91.6	
	Yes	92.2	2.0	79.0	12.6
Check	No	81.2		71.6	
	Yes	47.6	33.6	30.0	41.6
Difference required for significance, 5% point	No fertilizer	5.6		7.0	
	Fertilizer	5.4		5.4	
	Fertilizer vs no fertilizer		6.6		8.7

segregated into "weak" and "strong" individuals. Findings given in Table 1 show definite injury to untreated seed when fertilizer was incorporated with the soil in the row, reducing the mean percentage emergence from 81.2 to 47.6, and the mean percentage "strong" plants from 71.6 to 30.0. When the seeds were treated, the fertilizer injury was nullified, there being no statistical differences in mean emergence or in percentage strong plants between rows receiving fertilizer and rows without fertilizer. There seems to be no preference of one chemical over another to prevent fertilizer injury, but when the mean percentage "strong" plants are considered, red copper oxide does not protect the seeds as well as Spergon or Arasan.

Muhr and Schroeder[1] have shown that Spergon protects pea seed from injury due to contact placement of fertilizer. When side and below placement of fertilizer were used no injury occurred. As the nitrogen increment of the fertilizer was increased the injury increased. In personal correspondence on this subject with Dr. Schroeder, he writes (October 23) as follows: "We found that many of the seeds that had not emerged and which presumably were killed by fertilizer contact also had extremely heavy fungous decay of the cotyledons. The soils men then were not so sure that all of the damage could be attributed to fertilizer injury. We suggested the possibility that the high concentration of nutrients in the vicinity of the seed was conducive to the rapid growth of seed-decaying fungi which were then better able to cause cotyledonary damage".

The writer realizes that contact application of fertilizer in commercial practice is rare, but to many victory gardeners the procedures followed here are not unusual. He would like to receive similar data or expressions of opinion on this subject.

VIRGINIA TRUCK EXPERIMENT STATION, NORFOLK, VIRGINIA

DISEASES REPORTED ON SPINACH

Reports are of Emergency Plant Disease Prevention Project Surveys.

SPINACH DOWNY MILDEW IN TEXAS: Dr. S. S. Ivanoff and I examined young spinach in the Eagle Pass area, and found 3 adjacent fields about 4 miles south of Eagle Pass showing very severe infection by blue mold (Peronospora effusa). The plants were young, averaging about 7 leaves. Examination of fields about 10 and 15 miles farther south, and others about 10 miles to the north failed to show infection by P. effusa on November 5. By November 18, however, the fields to the north of Eagle Pass had become severely infected.--George E. Altstatt

SPINACH DISEASES IN MISSOURI: On November 20, accompanied by Mr. Clyde Cunningham, Extension Horticulturist of the University of Missouri, and Mr. Paul M. Bernard, County Agent, St. Louis County, spinach plantings reported to have been rather seriously affected with a trouble of uncertain origin were examined in the St. Louis area.

According to information secured from Mr. Bernard, spinach grown in this area for fall and spring cuttings has been generally affected with some disturbance that resulted in the failure of plants to develop to normal size and in many instances had caused the plants to die. Limited observations in the area, of plantings known to be most seriously affected, revealed that Blight (Cucumber-Mosaic Virus) was responsible for much of the damage, at least in the Blight-susceptible varieties. In one planting of a broad (flat)-leaved susceptible variety, plants in all stages of Blight manifestation could be found. The disease had been so damaging in this planting that no attempt was made to harvest the crop.

Adjacent to this planting was a field of Old Dominion (Blight-resistant). Although this planting, in contrast to the one described, appeared to be in relatively good condition, many scattered plants were obviously dwarfed, and there was some yellowing of the outer foliage. The stand had also been reduced somewhat by the death of some plants. In a number

[1] Muhr, G. R., and W. T. Schroeder, Proceedings 18th Annual Meeting, National Joint Committee on Fertilizer Application, pp. 83-87. 1942. (Published and distributed by the National Fertilizer Association).

of these dwarfed plants the "heart" leaves appeared dwarfed and exceedingly yellow. The root systems of affected plants seemed to be fairly well developed and in a sound condition except for a brown discoloration of the stele of some of the tap roots. According to the grower the disturbance was much more pronounced prior to the advent of cool weather and the root systems of many plants examined earlier in the fall showed rather extensive decay, principally of the fibrous roots. In plants that survived, this damage to the root system apparently was overcome by the further development of new roots. The cause of this disturbance could not be ascertained, although these symptoms rather suggest, at least in part, a Fusarium wilt and stunt of spinach described in Virginia. (Cook, Harold T. and T. J. Nugent. Fusarium wilt and stunt of spinach in Virginia. Phytopath. 28: 5. 1938). However, there remains the possibility that Blight infection, with the development of less pronounced symptoms if this variety (Old Dominion) is not immune from the virus, may account for some of this abnormal development. Since the early effects of the disease apparently had been overcome with the advent of cool weather, it was not possible to determine the extent of the damage to the original planting.

A trace of Cercospora leaf spot (Cercospora flagelliformis ?) and blackmold (Cladosporium sp.) was present on the older foliage of some plants. --T. W. Bretz

MUSHROOM DISEASES IN MISSOURI

T. W. Bretz

In company with Mr. Clyde Cunningham, Extension Horticulturist, University of Missouri, a survey was made of several mushroom houses in the Kansas City area on November 6, 1944, in response to requests from the growers in regard to the development of certain diseases in the beds coming into production. On November 20, Mr. Cunningham and the writer examined commercial mushroom plantings at Hermann.

The earliest spawned beds were developing their first "breaks" at the time of the survey. In Kansas City the Bubble disease (Mycogone perniciosa) was present in many of the beds and in one range of houses had developed to a damaging extent. The grower in charge of these houses estimated that 20 to 25% of the "breaks" were diseased. The disease was less destructive in other houses examined (estimated 1 to 2%), which, in general, were not so advanced in development. The disease is thought to have been introduced with the casing soil used to cover the compost, and according to certain of the growers, all sources of casing soil in this area appear to be contaminated. Steam pasteurization of such casing soil is recommended prior to use in covering the beds, but the soil used on the beds that have developed the Bubble disease was not pasteurized due to the lack of sufficient labor. The disease is known to have been present in a number of the affected houses last season. In view of the existing labor shortage, it appears probable that these houses may not have been cleaned out as thoroughly as is necessary between growing seasons. In that event, sufficient inoculum of the causal agent may have persisted within the houses to initiate the infections in the present crop. The general tendency of forcing the crop by the use of relatively high temperatures undoubtedly also favors the development of the disease.

The mushrooms in a portion of a single bed in one house were being destroyed by a disease, which, in the character of the sporophore produced and the rapid rate of spread within the bed, appeared to be typical of the Mummy disease (cause unknown)[1].

Mildew (Dactylium sp.) and Truffle (Pseudobalansia microspora ?) were observed in a number of beds, causing minor damage.

A disease having the characteristics ascribed to Damping-off (Fusarium spp.) was prevalent and damaging in the beds of one of the houses visited.

The mushroom houses examined at Hermann had not, at the time of the survey, developed any major disease problems. Mildew (Dactylium sp.) and Green Mold (Trichoderma spp.) were present to a very limited extent but appeared to be of no practical importance.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

OTHER REPORTS ON VEGETABLE DISEASES

Except where noted, reports are of Emergency Plant Disease Prevention Project surveys.

ASTER YELLOWS ON CARROTS IN ONTARIO COUNTY, NEW YORK: During the months of September and October, various carrot fields were visited to determine the extent of the Aster Yellows virus disease on the late carrot crop in and around Ontario County. This area is planted almost exclusively to strains of the Chantenay variety to be used for processing. Twenty-five fields, comprising about 175 acres, showed an average of 30% Yellows. The percentages in individual fields varied from 5 to 52. Five commercial strains of Chantenay planted in strips in a long field showed almost identical percentages of the disease.--W. T. Shroeder, New York State Agricultural Experiment Station, Geneva.

VIRUS DISEASES OF CRUCIFERS: In Lane County in Western OREGON (Nov. 16-17), specimens of Brassica campestris apparently infected with the vein-clearing type of cabbage virus were collected in cabbage patches, for use in tests being made by Dr. Glenn S. Pound to verify the presence of the virus. This weed is very common and if it should become generally infected with the virus might be an important source of inoculum, because of its biennial habit of growth.

At this date it appears that gains have been made by certain growers in reducing the amount of mosaic in cabbage for seed crops. The disease is very prevalent in certain truck crops such as cauliflower and Chinese cabbage.--Lytton W. Boyle.

In CALIFORNIA, a cauliflower field near Mt. Eden in Alameda County (Nov. 13-18) contained 10% of mosaic-diseased plants.--Henry Schneider.

COTTONY ROT OF LIMA BEAN IN CALIFORNIA: Occasional plants were being killed by cottony rot (Sclerotinia sclerotiorum) in a field near Santa Clara.--Henry Schneider, Nov. 13-18

DISEASES OF GARDEN BEETS IN WESTERN OREGON: In Lane County (Nov. 16-17), garden beets for the seed crop had made a good growth. In contrast to

[1] Tucker, C. M. and J. B. Routien. The mummy disease of the cultivated mushroom. Missouri Agr. Exp. Stat. Res. Bull. 358: 1-27. 1942.

1943, there is much less development of Leaf Spots (Cercospora beticola, Ramularia betae). Rust (Uromyces betae) was evident but patchy in distribution.--Lytton W. Boyle

DISEASES REPORTED ON CELERY: A slight amount of Late Blight (Septoria apii) was found on 20% of the plants, in Greenwich, CONNECTICUT.--Robert C. Cassell, Oct. 2-7

Occurrence of Chlorosis and Rosette of celery in Western OREGON has been noted in previous reports. As data was accumulated regarding the occurrence and severity of this trouble, it seemed very probable that factors of soil fertility might be responsible, at least in part. A visit was made on November 15 to Milwaukie flats in Clackamas County, with Dr. W. L. Powers of the Soils Department of Oregon State College, and soil samples were collected for use in controlled tests.

In Lane County (Nov. 16-17), Late Blight (Septoria sp.) was prevalent but control practices had prevented significant loss to the crop.--Lytton W. Boyle.

LEAF SPOT OF PEPPER IN MISSISSIPPI: Leaf Spot (Cercospora capsici) was found to be common in many local gardens in Southern Mississippi.--Douglas C. Bain, November 1-4

POTATO STORAGE LOSSES IN OREGON: A visit was made to the Yamhill area with Dr. J. A. Milbrath, November 1. Storage losses due to Pythium sp. are recurring in this area this year. Improved storage facilities, however, have greatly reduced the losses in comparison with last year. Individual tubers were completely decomposed, but as yet spread of the trouble through the storage bins was not evident. It appears that the loss may be limited to primary infections that occur in the field. Potatoes grown in this area are principally for processing into potato chips. For this reason, the crop is harvested early to avoid temperatures below 40° F and is held at as near 45° as possible.--Lytton W. Boyle

SWEETPOTATO DISEASES AND INJURIES IN MISSISSIPPI: The Laurel-Meridian-Quitman sweetpotato area was visited during the period November 13 to 17. The condition known as "Growth Crack" appears to be unusually common this year. Evidently, this condition was brought about by the drought during the summer. Scurf (Monilochaetes infuscans) was also found to be very common. In some sections there was a considerable amount of Fusarium Wilt (Fusarium spp.). Scab or Pox (Actinomyces ipomoeae) was generally distributed in trace amounts.--Douglas C. Bain.

YELLOW-TOP OF TOMATO IN TEXAS: In recent trips in the Winter Garden area with Dr. S. S. Ivanoff, and in the Lower Rio Grande Valley with Dr. G. H. Godfrey, traces of Yellow-Top (undetermined) were observed on occasional plants near Quemado, Laredo, and Mission.--George E. Altstatt, November report.

TOMATO DISEASES IN WESTERN OREGON: In Josephine County, it was too late for a critical estimate of losses due to respective causes. Losses appeared to have been as high as 50% in some fields, due to the combination of root infection, early blight, and virus diseases (curly top, tip blight). No large acreage of this crop was noted in the area.

Virus diseases in Curry County were a limiting factor in the production of tomatoes in home gardens and in small acreages for local markets. Spotted wilt, tip blight, and curly top symptoms were observed. Judging from the development of the plants, the infection either occurred comparatively late or did not readily become severe under this environment.

Symptoms of early blight were prevalent also. Both Alternaria [solani] and Ascochyta [lycopersici] have been reported causing this type of symptom in this area.

Conditions observed in Coos County were similar to those in Curry County. --Lytton W. Boyle, Oct. 11-14

VERTICILLIUM WILT ON COTTON IN TEXAS

George E. Altstatt

In a previous report (PDR Vol. 28, No 28, p. 584, 1944) the reduction in yield for El Paso county cotton due to Verticillium albo-atrum as of August 30 was estimated at 5%. During September and October, this organism became more active, and the incidence of wilt increased alarmingly. Infection was high and many plants were killed -- some estimates by local people indicating that on an average one-third of all the plants were infected. Growers declared that damage was greater than that in the 1940 season, when the reduction in yield was reported as approximating 20% (PDR Vol. 24, No. 20, p. 424, 1940). Observations made November 20 to 24 indicate that the disease now occurs in more fields than in previous years, and that the average loss (reduction in yield and quality) will probably exceed the 20% estimate in 1940. The adjacent county, Hudspeth, does not have more than trace amounts of Verticillium wilt. In Dr. Wm. G. Hoyman's recent report on Diseases of Cotton in New Mexico, PDR Vol. 28, No. 33, p. 1001-2, 1944, it is reported that Dona Ana county, New Mexico, immediately adjacent to El Paso county on the north, had an unusually high incidence of the disease this season.

Verticillium wilt was not severe in the Madera Valley (Balmorhea). EMERGENCY PLANT DISEASE PREVENTION PROJECT

DISEASES REPORTED ON FRUIT CROPS

DISEASES OF SATSUMA ORANGE IN MISSISSIPPI: Approximately 100 acres of the Satsuma orange are concentrated at Carriere, in Pearl River County. Apparently this is the only area where citrus fruits are grown on a large scale in the State. Scab (Sphaceloma fawcettii) was the predominating disease, and not a fruit was seen that did not have typical symptoms. Foliage was also diseased. The sooty mold fungus (Capnodium citri) was noted in considerable amounts on fruit as well as foliage. Symptoms of mineral deficiencies (probably zinc and manganese) were also seen, but did not appear to be of any consequence.--Douglas C. Bain, Nov. 13-17.

APPLE DISEASES IN CALIFORNIA: On November 17 a trip was made to the Sebastopol district of Sonoma County with Dr. H. Earl Thomas.

Several Gravenstein orchards, in which Dr. Thomas had previously taken

notes on the occurrence of the Flat Limb Virus disease, were examined. Many of the trees that previously had the disease had been removed by the growers, and no spread of the disease was noted. About 15 orchards all told have contained infected trees (Phytopath. 32: 435. 1942). These orchards were all of the Gravenstein variety.

One orchard was observed in which Armillaria Root Rot (A. mellea) had killed several trees.

A trace of Scab (Venturia inaequalis) was present on the old leaves. The fruit had not been affected.

Several trees were observed on which branches were dying because of Sappy Bark (Polyporus versicolor).

One tree observed was affected by Measles (cause unknown, probably nutrient deficiency).

Dieback (cause not definitely known but probably due to soil deficiencies and poor drainage) was common in some orchards.--Henry Schneider

CHERRY DISEASES IN CALIFORNIA: Several areas in which trees were dying from Armillaria Root Rot were present in one orchard near Sunnyvale in Santa Clara County.

In the Sebastopol district of Sonoma County, a trace of Leaf Spot (Coccomyces hiemalis) was observed.

A tree in this district known to be affected with Rugose Mosaic (Cherry Mosaic 1; Hilgardia 12: 628) since 1935 was still showing leaf symptoms but otherwise was in fair condition. The disease has been observed in Tulare, Sonoma, Alameda, Butte, Napa, Solano, Riverside, Sutter, and Santa Cruz Counties at one time or another since 1935.

A number of orchards were observed in the Sebastopol district in which the trees were dying back severely. The trouble has increased extensively during the past 3 years. The cause in unknown; probably soil deficiencies and irregular soil moisture are concerned. Soil treatments with borax in one orchard have not improved the trees.--Henry Schneider, Nov. 13-18.